

WHAT IS CLAIMED IS:

1. A method for enabling a first communications system and a second communications system, respectively located behind a first firewall and a second firewall, to directly communicate with each other, wherein each of said first and second firewalls respectively prevents communication initiated from an external data network from reaching said first or second communications system, said method comprising:

10 establishing a first secure connection via said external data network between said first communications system and a central communications station through said first firewall, wherein said first secure connection is initiated by said first communications system thereby being allowed to pass through said first firewall;

establishing a second secure connection via said external data network between said second communications system and said central communications station through said second firewall, wherein said second secure connection is initiated by said second communications system thereby being allowed to pass through said second firewall;

25 forwarding connection information of said second communications system to said first communications system via said first secure connection using said central communications station; and

transmitting data from said first communications system to said second communications

30 system, wherein said data uses said connection  
information of said second communications system as its  
destination information and uses connection information  
for said central communications station as its source  
information so as to appear as if it had originated  
35 from said central communications station.

2. The method of claim 1 wherein said  
connection information for said second communications  
system includes Internet protocol address and port of  
said second communications system and wherein said  
5 connection information for said central communications  
station includes Internet protocol address and port of  
said central communications station.

3. The method of claim 1 further  
comprising:

forwarding connection information of  
said first communications system to said second  
5 communications system via said second secure connection  
using said central communications station; and

transmitting data from said second  
communications system to said first communications  
system, wherein said data uses said connection  
10 information of said first communications system as its  
destination information and uses connection information  
for said central communications station as its source  
information so as to appear as if it had originated  
from said central communications station.

4. The method of claim 3 wherein said connection information for said first communications system includes Internet protocol address and port of said first communications system.

5. A method for enabling a first communications system and a second communications system, respectively located behind a first firewall and a second firewall and having respective associated first and second network address translation devices,  
5 to directly communicate with each other, wherein each of said first and second firewalls respectively prevents communication initiated from an external data network from reaching said first or second  
10 communications system and wherein each of said first and second network address translation devices respectively provides public source information for outbound data originated from said first and second communications system, said method comprising:  
15 establishing a first secure connection via an external data network between said first communications system and a central communications station through said first firewall, wherein said first secure connection is initiated by said first  
20 communications system thereby being allowed to pass through said first firewall;

establishing a second secure connection via said external data network between said second

communications system and said central communications  
25 station through said second firewall, wherein said  
second secure connection is initiated by said second  
communications system thereby being allowed to pass  
through said second firewall;

transmitting connection information for  
30 establishing new connection with said first  
communications system from said first communications  
systems to said central communications station via said  
first secure connection;

transmitting connection information for  
35 establishing new connection with said second  
communications system from said second communications  
system to said central communications station via said  
second secure connection;

forwarding said connection information  
40 for establishing new connection with said second  
communications system to said first communications  
system via said first secure connection using said  
central communications station;

transmitting a connection request from  
45 said first communications system to said second  
communications system wherein said connection request  
uses said connection information for establishing new  
connection with said second communications system as  
its destination information;

50 forwarding said connection information  
for establishing new connection with said first  
communications system to said second communications

system via said second secure connection using said central communications station;

55                   transmitting connection acknowledgement  
and request from said second communications system to  
said first communications system wherein said  
connection acknowledgement and request uses said  
connection information for establishing new connection  
60 with said first communications system as its  
destination information; and

                  in response to receiving said connection  
acknowledgement and request from said second  
communications system, transmitting a connection  
65 acknowledgement from said first communications system  
to said second communications system.

6.   The method of claim 5 wherein:

                  said connection information for  
establishing a new connection with said first  
communications system includes public Internet protocol  
5 address provided by said first network address  
translation device and port for said first  
communications system's next connection; and

                  said connection information for  
establishing a new connection with said second  
10 communications system includes public Internet protocol  
address provided by said second network address  
translation device and port for said second  
communications system's next connection.

7. A system for enabling a first communications system and a second communications system, respectively located behind a first firewall and a second firewall, to directly communicate with each other, wherein each of said first and second firewalls respectively prevents communication initiated from an external data network from reaching said first or second communications system, said system comprising:

10 means for establishing a first secure connection via said external data network between said first communications system and a central communications station through said first firewall, wherein said first secure connection is initiated by said first communications system thereby being allowed to pass through said first firewall;

means for establishing a second secure connection via said external data network between said second communications system and said central communications station through said second firewall, wherein said second secure connection is initiated by said second communications system thereby being allowed to pass through said second firewall;

means for forwarding connection information of said second communications system to said first communications system via said first secure connection using said central communications station; and

means for transmitting data from said first communications system to said second

communications system, wherein said data uses said connection information of said second communications system as its destination information and uses connection information for said central communications station as its source information so as to appear as if it had originated from said central communications station.

8. The system of claim 7 wherein said connection information for said second communications system includes Internet protocol address and port of said second communications system and wherein said connection information for said central communications station includes Internet protocol address and port of said central communications station.

9. The system of claim 7 further comprising:

means for forwarding connection information of said first communications system to said second communications system via said second secure connection using said central communications station; and

means for transmitting data from said second communications system to said first communications system, wherein said data uses said connection information of said first communications system as its destination information and uses connection information for said central communications station as its source information so as to appear as if

15 it had originated from said central communications  
station.

10. The system of claim 9 wherein said  
connection information for said first communications  
system includes Internet protocol address and port of  
said first communications system.

11. A system for enabling a first  
communications system and a second communications  
system, respectively located behind a first firewall  
and a second firewall and having respective associated  
5 first and second network address translation devices,  
to directly communicate with each other, wherein each  
of said first and second firewalls respectively  
prevents communication initiated from an external data  
network from reaching said first or second  
10 communications system and wherein each of said first  
and second network address translation devices  
respectively provides public source information for  
outbound data originated from said first and second  
communications system, said system comprising:

15 means for establishing a first secure  
connection via an external data network between said  
first communications system and a central  
communications station through said first firewall,  
wherein said first secure connection is initiated by  
20 said first communications system thereby being allowed  
to pass through said first firewall;



means for establishing a second secure connection via said external data network between said second communications system and said central  
25 communications station through said second firewall, wherein said second secure connection is initiated by said second communications system thereby being allowed to pass through said second firewall;

means for transmitting connection  
30 information for establishing new connection with said first communications system from said first communications system to said central communications station via said first secure connection;

means for transmitting connection  
35 information for establishing new connection with said second communications system from said second communications system to said central communications station via said second secure connection;

means for forwarding said connection  
40 information for establishing new connection with said second communications system to said first communications system via said first secure connection using said central communications station;

means for transmitting a connection  
45 request from said first communications system to said second communications system wherein said connection request uses said connection information for establishing new connection with said second communications system as its destination information;

50 means for forwarding said connection information for establishing new connection with said

first communications system to said second communications system via said second secure connection using said central communications station;

55                    means for transmitting connection acknowledgement and request from said second communications system to said first communications system wherein said connection acknowledgement and request uses said connection information for  
60                    establishing new connection with said first communications system as its destination information; and

                    means for transmitting a connection acknowledgement from said first communications system  
65                    to said second communications system in response to receiving said connection acknowledgement and request from said second communications system.

12. The system of claim 11 wherein:

                    said connection information for establishing a new connection with said first communications system includes public Internet protocol  
5                    address provided by said first network address translation device and port for said first communications system's next connection; and

                    said connection information for establishing a new connection with said second  
10                    communications system includes public Internet protocol address provided by said second network address

translation device and port for said second communications system's next connection.

13. A system for enabling two communications system, located behind firewalls, to directly communicate with each other, said system comprising:

a central communications station;

5 a first communications system and a second communications system, wherein each of said first and second communications system comprises a respective secure connection interface that establishes a secure connection with said central communications  
10 station via an external data network through a network access;

a first firewall and a second firewall respectively located between said external data network and said first and second communications systems,  
15 wherein each of said first and second firewalls respectively prevents communication initiated from said external data network from reaching said first or second communications system; and

said central communications station  
20 comprises:

a secure connection interface that maintains secure connections with said first and second communications systems via said external communications network through a network access, and

25                   a secure redirector that forwards  
connection information of said second communications  
system to said first communications system via said  
secure connection with said first communications system  
thereby enabling said first communications system to  
30   transmit data to said second communications system,  
wherein said data uses said connection information of  
said second communications system as its destination  
information and uses connection information for said  
central communications station as its source  
35   information so as to appear as if it had originated  
from said central communications station.

14.   The system of claim 13 wherein said  
connection information for said second communications  
system includes Internet protocol address and port of  
said second communications system and wherein said  
5   connection information for said central communications  
station includes Internet protocol address and port of  
said central communications station.

15.   The system of claim 13, wherein said  
secure redirector additionally forwards connection  
information of said first communications system to said  
second communications system via said secure connection  
5   with said second communications system thereby enabling  
said second communications system to transmit data to  
said first communications system, wherein said data  
uses said connection information of said first  
communications system as its destination information  
10   and uses connection information for said central

communications station as its source information so as to appear as if it had originated from said central communications station.

16. The system of claim 15 wherein said connection information for said first communications system includes Internet protocol address and port of said first communications system.

17. A system for enabling two communications system, located behind firewalls and having associated network translation devices, to directly communicate with each other; said system comprising:

5                                   a central communications station;

                                  a first communications system and a second communications system, wherein each of said first and second communications system comprises:

                                  a respective secure connection  
10 interface that establishes a secure connection with said central communications station via an external data network through a network access, and

                                  a respective transmitter that transmits connection information for establishing a new  
15 connection with a respective one of said first and second communications system to said central communications station via said secure connection;

                                  a first firewall and a second firewall respectively located between said external data network

20 and said first and second communications systems,  
wherein each of said first and second firewalls  
respectively prevents communication initiated from said  
external data network from reaching said first or  
second communications system; and

25 a first network address translation  
device and a second network address translation device  
respectively associated with said first and second  
communications systems, wherein each of said first and  
second network address translation devices respectively  
30 provides public source information for outbound data  
originated from said first and second communications  
system; wherein:

said central communications station  
comprises:

35 a secure connection interface that  
maintains secure connections with said first and second  
communications systems via said external communications  
network through a network access, and

a secure redirector that:

40 forwards said connection  
information for establishing new connection with said  
second communications system to said first  
communications system via said secure connection with  
said first communications system thereby enabling said  
45 first communications system to transmit a connection  
request to said second communications system wherein  
said connection request uses said connection  
information for establishing new connection with said

second communications system as its destination  
50 information, and

forwards said connection  
information for establishing new connection with said  
first communications system to said second  
communications system via said secure connection with  
55 said second communications system, thereby:

enabling said second  
communications system to transmit connection  
acknowledgement and request from said second  
communications system to said first communications  
60 system wherein said connection acknowledgement and  
request uses said connection information for  
establishing new connection with said first  
communications system as its destination information,  
and

65 enabling said first  
communications system to transmit a connection  
acknowledgement from said first communications system  
to said second communications system.

18. The system of claim 17 wherein:

said connection information for  
establishing a new connection with said first  
communications system includes public Internet protocol  
5 address provided by said first network address  
translation device and port for said first  
communications system's next connection; and

said connection information for  
establishing a new connection with said second  
10 communications system includes public Internet protocol  
address provided by said second network address  
translation device and port for said second  
communications system's next connection.

19. A central communications station for  
enabling a first communications system and a second  
communications system, respectively located behind a  
first firewall and a second firewall, to directly  
5 communicate with each other, wherein each of said first  
and second firewalls respectively prevents  
communication initiated from an external data network  
from reaching said first or second communications  
system, said central communications station comprising:

10 means for maintaining a first secure  
connection with said first communications system via  
said external data network through said first firewall,  
wherein said first secure connection is initiated by  
said first communications system thereby being allowed  
15 to pass through said first firewall;

means for maintaining a second secure  
connection with said second communications system via  
said external data network through said second  
firewall, wherein said second secure connection is  
20 initiated by said second communications system thereby  
being allowed to pass through said second firewall; and

means for forwarding connection  
information of said second communications system to



25 said first communications system via said first secure  
connection thereby enabling said first communications  
system to transmit data to said second communications  
system, wherein said data uses said connection  
information of said second communications system as its  
destination information and uses connection information  
30 for said central communications station as its source  
information so as to appear as if it had originated  
from said central communications station.

20. The central communications station of  
claim 19 wherein said connection information for said  
second communications system includes Internet protocol  
address and port of said second communications system  
5 and wherein said connection information for said  
central communications station includes Internet  
protocol address and port of said central  
communications station.

21. The central communications station of  
claim 19 further comprising:  
means for forwarding connection  
information of said first communications system to said  
5 second communications system via said second secure  
connection thereby enabling said second communications  
system to transmit data to said first communications  
system, wherein said data uses said connection  
information of said first communications system as its  
10 destination information and uses connection information  
for said central communications station as its source

information so as to appear as if it had originated from said central communications station.

22. The central communications station of claim 21 wherein said connection information for said first communications system includes Internet protocol address and port of said first communications system.

23. A central communications station for enabling a first communications system and a second communications system, respectively located behind a first firewall and a second firewall and having  
5    respective associated first and second network address translation devices, to directly communicate with each other, wherein each of said first and second firewalls respectively prevents communication initiated from an external data network from reaching said first or  
10   second communications system and wherein each of said first and second network address translation devices respectively provides public source information for outbound data originated from said first and second communications system, said central communications  
15   station comprising:

          means for maintaining a first secure connection via an external data network with said first communications system through said first firewall, wherein said first secure connection is initiated by  
20   said first communications system thereby being allowed to pass through said first firewall;

means for maintaining a second secure connection via said external data network with said second communications system through said second  
25 firewall, wherein said second secure connection is initiated by said second communications system thereby being allowed to pass through said second firewall;

means for obtaining connection information for establishing new connection with said  
30 first communications system from said first communications systems via said first secure connection;

means for obtaining connection information for establishing new connection with said  
35 second communications system from said second communications system via said second secure connection;

means for forwarding said connection information for establishing new connection with said  
40 second communications system to said first communications system via said first secure connection thereby enabling said first communications system to transmit a connection request to said second communications system, wherein said connection request  
45 uses said connection information for establishing new connection with said second communications system as its destination information; and

means for forwarding said connection information for establishing new connection with said  
50 first communications system to said second communications system via said second secure connection, thereby:

enabling said second communications system to transmit connection acknowledgement and request to said first communications system wherein said connection acknowledgement and request uses said connection information for establishing new connection with said first communications system as its destination information, and

enabling said first communications system to transmit a connection acknowledgement to said second communications system in response to receiving said connection acknowledgement and request from said second communications system.

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24. The central communications station of claim 23 wherein:

said connection information for establishing a new connection with said first communications system includes public Internet protocol address provided by said first network address translation device and port for said first communications system's next connection; and

said connection information for establishing a new connection with said second communications system includes public Internet protocol address provided by said second network address translation device and port for said second communications system's next connection.

25. A central communications station for enabling a first communications system and a second communications system, respectively located behind a first firewall and a second firewall to directly  
5 communicate with each other, wherein each of said first and second firewalls respectively prevents communication initiated from an external data network from reaching said first or second communications system, said central communications station comprising:  
10 a secure connection interface that maintains secure connections with said first and second communications systems through a network access to said external communications network; and  
a secure redirector that forwards  
15 connection information of said second communications system to said first communications system via said secure connection with said first communications system thereby enabling said first communications system to transmit data to said second communications system,  
20 wherein said data uses said connection information of said second communications system as its destination information and uses connection information for said central communications station as its source information so as to appear as if it had originated  
25 from said central communications station.

26. The central communications station of claim 25 wherein said connection information for said second communications system includes Internet protocol address and port of said second communications system

5 and wherein said connection information for said  
central communications station includes Internet  
protocol address and port of said central  
communications station.

27. The central communications station of  
claim 25, wherein said secure redirector additionally  
forwards connection information of said first  
communications system to said second communications  
5 system via said secure connection with said second  
communications system thereby enabling said second  
communications system to transmit data to said first  
communications system, wherein said data uses said  
connection information of said first communications  
10 system as its destination information and uses  
connection information for said central communications  
station as its source information so as to appear as if  
it had originated from said central communications  
station.

28. The central communications station of  
claim 27 wherein said connection information for said  
first communications system includes Internet protocol  
address and port of said first communications system.

29. A central communications station for  
enabling a first communications system and a second  
communications system, respectively located behind a  
first firewall and a second firewall and having

5     respective associated first and second network address  
translation devices, to directly communicate with each  
other, wherein each of said first and second firewalls  
respectively prevents communication initiated from an  
external data network from reaching said first or  
10    second communications system and wherein each of said  
first and second network address translation devices  
respectively provides public source information for  
outbound data originated from said first and second  
communications system, said central communications  
15    station comprising:

          a secure connection interface that  
maintains secure connections with said first and second  
communications systems via said external communications  
network through a network access; and

20               a secure redirector that:

                  forwards said connection  
information for establishing new connection with said  
second communications system to said first  
communications system via said secure connection with  
25    said first communications system thereby enabling said  
first communications system to transmit a connection  
request to said second communications system wherein  
said connection request uses said connection  
information for establishing new connection with said  
30    second communications system as its destination  
information, and

                  forwards said connection  
information for establishing new connection with said  
first communications system to said second  
35    communications system via said secure connection with

said second communications system, thereby:

enabling said second  
communications system to transmit connection  
acknowledgement and request from said second  
40 communications system to said first communications  
system wherein said connection acknowledgement and  
request uses said connection information for  
establishing new connection with said first  
communications system as its destination information,  
45 and

enabling said first  
communications system to transmit a connection  
acknowledgement from said first communications system  
to said second communications system

50

30. The central communications station of  
claim 29 wherein:

said connection information for  
establishing a new connection with said first  
5 communications system includes public Internet protocol  
address provided by said first network address  
translation device and port for said first  
communications system's next connection; and

said connection information for  
10 establishing a new connection with said second  
communications system includes public Internet protocol  
address provided by said second network address  
translation device and port for said second  
communications system's next connection.